Anti-surge Chip Resistors

ESR18 (1206 size: 1/3W)

●Features

1) Power rating of 1/3W (MCR18 1/4W)
2) Superior anti surge to MCR series.
3) Highly reliable chip resistor Ruthenium oxide dielectric offers superior resistance to the elements.
4) ROHM resistors have approved ISO9001- / ISO/TS 16949- certification.

Design and specifications are subject to change without notice. Carefully check the specification sheet before using or ordering it.

●Ratings

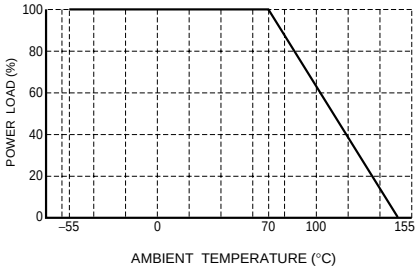
Item	Conditions	Specifications	
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.33W (1/3W) at 70°C	
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting element voltage, the voltage rating is equal to the maximum operating voltage. $E=\sqrt{P\times R}$ E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω)	Limiting element voltage	200V
Nominal resistance	See Table 1.		
Operating temperature		–55°C to +155°C	

Table 1

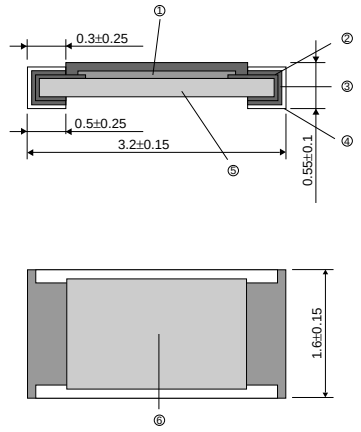
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
D (±0.5%)	10 ≤ R ≤ 1M (E24)	±100
F (±1%)	1 ≤ R ≤ 10M (E24)	±100
J (±5%)	1 ≤ R ≤ 10M (E24)	±200

●Before using components in circuits where they will be exposed to transients such as pulse loads (short–duration, high–level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady state voltage that is greater than its rated voltage.

●Characteristics

Item	Guaranteed value Resistor type	Test conditions (JIS C 5201-1)
Resistance	J : ±5% F : ±1% D : ±0.5%	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : –55 / +25 / +125°C
Overload	± (2.0%+0.1Ω)	JIS C 5201-1 4.13 Rated voltage (current) ×2.5, 2s. Limiting Element Voltage×2 : 400V
Solderability	A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	JIS C 5201-1 4.17 Rosin·Ethanol (25%WT) Soldering condition : 235±5°C Duration of immersion : 2.0±0.5s.
Resistance to soldering heat	± (1.0%+0.05Ω) No remarkable abnormality on the appearance.	JIS C 5201-1 4.18 Soldering condition : 260±5°C Duration of immersion : 10±1s.
Rapid change of temperature	± (1.0%+0.05Ω)	JIS C 5201-1 4.19 Test temp. : –55°C to +125°C 5cyc
Damp heat, steady state	± (3.0%+0.1Ω)	JIS C 5201-1 4.24 40°C, 93%RH Test time : 1,000h to 1,048h
Endurance at 70°C	± (3.0%+0.1Ω)	JIS C 5201-1 4.25.1 Rated voltage (current), 70°C 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance	± (3.0%+0.1Ω)	JIS C 5201-1 4.25.3 155°C Test time : 1,000h to 1,048h
Resistance to solvent	± (1.0%+0.05Ω)	JIS C 5201-1 4.29 23±5°C, Immersion cleaning, 5±0.5min. Solvent : 2-propanol
Bend strength of the end face plating	± (1.0%+0.05Ω) Without mechanical damage such as breaks.	JIS C 5201-1 4.33
Static electric characteristics	± (5.0%+0.05Ω)	EIAJ ED-4701/300 Test method 304 Voltage : 3kv R : 1.5kΩ C : 100pF Apply cycle : 1 time

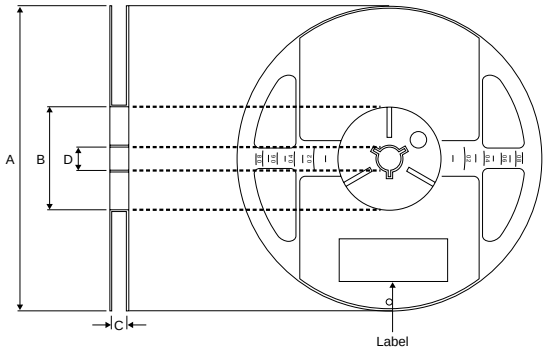
●**Dimensions** (Unit : mm)



No.	Material
①	Resistive element (Oxide metal thick film)
②	Silver thick film electrode
③	Nickel electrode
④	Sn electrode
⑤	Alumina substrate
⑥	Overcoating (Resin)

●**Packaging**

Reel

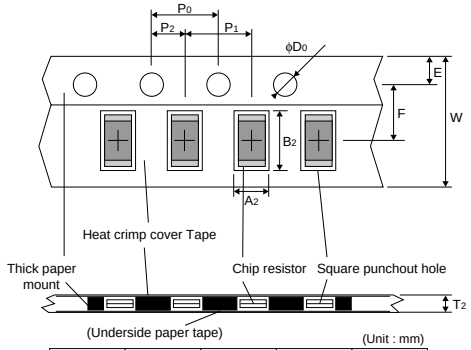


EIAJ ET-7200B compliant

(Unit : mm)

A	B	C	D
$\phi180\ ^{0}_{-1.5}$	$\phi60\ ^{+1}_{0}$	$9\ ^{+1.0}_{0}$	$\phi13\pm0.2$

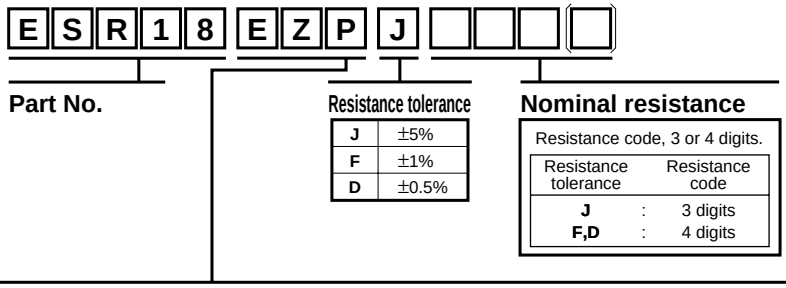
Taping



(Unit : mm)

W	F	E	A_2	B_2
8.0±0.3	3.5±0.05	1.75±0.1	$1.95\ ^{+0.1}_{-0.05}$	$3.5\ ^{+0.15}_{-0.05}$
D_0	P_0	P_1	P_2	T_2
$\phi1.5\ ^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

●**Part No. Explanation**



Packaging Specifications Code

Part No.	Code	Resistance tolerance			Packaging specifications	Reel	Basic ordering unit(pcs)
		J(±5%)	F(±1%)	D(±0.5%)			
ESR18	EZP	◎	◎	◎	Paper tape (4mm Pitch)	ϕ180mm (7in.)	5,000

Reel (ϕ180) : JEITA ET-7200B
◎ : Standard product

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